

App. No. 10/604,085
Response dated September 28, 2005
Reply to Office Action of June 29, 2005

REMARKS

Summary of Amendments

1. The specification has been amended at initiative on Applicants' behalf to editorially revise a phrase in paragraph [0007] and to correct, as a formal matter only, numerous instances of garbled text; of course no new matter has been added.¹

(The garbling of certain symbols in the present case has been found by Applicants' undersigned representative to be an artifact of the submission of the present application by means of the USPTO's Electronic Filing System. When the present application was electronically filed, versions of the specification printed out via browser display and via "ePAVE" (the USPTO's proprietary electronic submission software)—and still viewable—on Applicants' end did not then, and do not now, contain illegible text. The helpdesk at EFS has confirmed that if garbled-text-containing specifications on the EFS server are opened off-server (i.e., on another machine), then the garbled text no longer appears.)

Claims 1 through 4 were originally presented in this application. No new claims have been added and no claims have been canceled. Claim 1 has been amended, as described in more detail below. Claims 1 through 4 remaining pending.

Rejections under 35 U.S.C. § 103

Claims 1-4; Araki et al. '402 in view of Soma et al. '690

2. Claims 1 through 4 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Araki et al.* (U.S. Pat. No. 6,239,402) in view of *Soma et al.* (U.S. Pat. No. 5,231,690). In particular, the Examiner states:

Araki et al. disclose an aluminum nitride based wafer holder for [a] semiconductor manufacturing device (Fig. 8) with a shaft (28) or wafer holder (Fig. 9) with a shaft (34) and an electrical circuit formed inside . . . and electrodes for supplying power (12, 13 and 14). The heat capacity of the electrodes could be fairly estimated to be less than 2 J/gK

¹ Please note that in making these amendments, the paragraph numbering that has been followed is that of the IFW/PALM version, not the XML version published by the Publication Division.

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The Examiner goes on to state:

The heat capacity of the wafer holder however could be fairly estimated to be more than 350 J/gK for [the] wafer holder of Fig. 9 and much larger for the wafer holder of Fig 8. Therefore the heat capacity of the electrodes of the disclosed wafer holder would be much less than 10%.

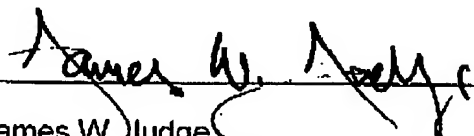
3. Independent claim 1 has been amended to recite: "wherein joining faces of the shaft and the wafer holder have a surface roughness of less than 5 μm Ra." Support for this amendment may be found, for example, in paragraph [0060] of the original specification before the examiner, which states in part "the surface of the respective joining faces preferably is 5 μm or less in Ra" such that no new search is required and no new matter has been entered.
4. Applicants respectfully submit that, as amended, claim 1 now distinguishes patentably over *Araki et al.* in view of *Soma et al.* Nothing in either of the prior art references cited by the Examiner teaches, or even suggests, a wafer holder as recited in claim 1 "wherein joining faces of the shaft and the wafer holder have a surface roughness of less than 5 μm Ra."
5. Moreover, neither *Araki et al.* nor *Soma et al.* show any recognition of the problem faced by Applicants, namely that of achieving a high temperature uniformity at the wafer carrying surface (e.g., within 1% as stated in the original specification at paragraph [0015] among other places). On the contrary, both *Araki et al.* and *Soma et al.* are concerned with improving the corrosion resistance of various components used in wafer holders. *Araki et al.*, in particular, is concerned with improving the corrosion resistance of an aluminum nitride based sintered body portion to a plasma of a halogen-based corrosive gas (column 1, lines 52-55). *Soma et al.* is primarily concerned with improving the corrosion resistance of a metal containing heating element (column 1, lines 17-27 and column 5, lines 64-66).
6. Furthermore, neither *Araki et al.* nor *Soma et al.* show any recognition of the importance of the ratio of the heat capacity of the electrodes as compared to the heat capacity of a predefined portion of the wafer holder as recited in original claim 1. No mention is made of the heat capacity of either the electrodes or the wafer holder in either prior art reference.
7. In light of the above remarks, Applicants respectfully submit that claim 1, as amended, is patentable over the prior art of record. Independent claim 1 being allowable, it follows *a fortiori* that dependent claims 2 through 4 must also be allowable, since these dependent claims carry with them all the elements of independent claim 1.

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Applicant believes that this application is now in full condition for allowance,
which action Applicant earnestly solicits.

Respectfully submitted,

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